

DESIGN REVIEW COMMENT AND RESOLUTION FORM

PROJECT NO.: 607209

DESCRIPTION: Somerville: Reconstruction of Beacon Street

DESIGNER: Design Consultants, Inc.

SUBMITTAL: Design Exception Report, dated 12/10/2012

REVIEW SECTION: Traffic & Safety Engineering Section



DATE: December 20, 2012

REVIEWER NAME: Jim Danila, P.E., PTOE

NO.	SHEET OR ITEM	COMMENT	INITIAL ACTION	RESPONSE	QC REVIEW INITIAL	FINAL ACTION VERIFIED
COMPLETED BY REVIEWER			COMPLETED BY DESIGNER			
1	DER	With only Typical Sections included in the report, it is difficult to fully comment on proposed design without knowing the overall context that can be gained from viewing an updated full set of plans which would show treatments at driveways and side streets, intersection control, parking regulations, locations of street furniture, etc.	A	Please refer to the progress plan submission, dated December 21, 2012, to gain an understanding of the overall context. These progress plans did not constitute a full submission and show revised curblines and pavement markings are shown, so that the proposed typical sections can be better understood. The progress plans do not, however, include landscaping, street furniture, proposed signage, nor proposed drainage.		
2	DER	The cycle track design at driveways and sidestreets is vital for both safety and bicyclist comfort. Poorly designed treatments may lead to decreased safety. Cycle tracks that constantly change elevation to accommodate driveways and side streets may be unattractive to riders and could ultimately discourage use.	A	Please refer to the progress plan submission, dated December 21, 2012, for details of the cycle track design at driveways and sidestreets. As shown on the design plans, the elevation of the cycle track does not change at each driveway. The current design does have elevation changes for the cycle track at sidestreets.		

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3	DER	The Designer should verify the dimensions shown on the Typical Sections. It is stated in the FDR that the curb-to-curb width is 44', but in the Section it is shown as 46'. District 4 has measured the width as 44.4' in several locations. Utility poles and hydrants are shown in line with the existing curb. If one of the supporting arguments for the Recommended Alternative is to retain existing surface utilities then they should be correctly located on the plans.	A	All utility poles were resurveyed in the summer of 2012 to attain an exact location of the roadway face of the utility pole. There are 36 utility poles located along the roadway from Washington Street to the Cambridge city line. As shown in both the July plans and the current plans, the only areas where utility poles require either a shift or relocation are in non-cycle track areas or from Washington Street to the Cambridge city line. The curb to curb along this portion of the roadway varies from approximately 43.7' to 44.6'. Utility poles along this portion of roadway vary in setback from the curb from approximately 0.7' to 1.9'. The current proposed alignment of this portion of the roadway will require approximately 22 utility poles to be shifted (10 on the north side and 12 on the south side) and 4 utility poles to be relocated (all on the south side). The preliminary cost estimate provided with the July 25% Design Submission included 15 utility pole shifts and 5 utility pole relocations.		
4	DER	The Designer should reconsider how the dimensions shown on the Typical Sections are labelled. Granite curb is not considered part of the walkable surface for sidewalks or part of the rideable portion of a cycle track (sloped or vertical). A buffer area between the cycle track and a parked car should also not be included in the width of a cycle track.	A	These changes will be included with the next design submission.		
5	DER	The Designer has not accounted for the width of the 1V:4H slope in their Typical Sections. This will effect the proposed lane, cycle track, and/or sidewalk widths. The sloped curb may be considered as part of a buffer area, but not as part of the actual rideable cycle track.	A	The dimensions of the 4H:1 V mountable curb are included in the dimension of the 6' cycle track, providing a clear width of 5'.		

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6	DER	A sloped curb between the sidewalk and the NB intermediate level cycle track from STA 103+25 to STA 123+00 and STA 132+25 and 141+75 is not necessary and may be replaced with a vertical granite curb.	A	A vertical granite curb in these areas is now included in the design, and is shown on the progress plan submission, dated December 21, 2012.		
7	DER	The Designer should consider widening the NB intermediate level cycle track that is proposed from STA 103+25 to STA 123+00 and STA 132+25 and 141+75 to 6.5' of total rideable surface to allow for passing without leaving the cycle track, since NB is mostly uphill in these sections.	B	The potential for changing the width of the cycle track in the NB direction will be considered, in conjunction with comment #11, below.		

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8	DER	<p>Cycle tracks that are separated from travel lanes by parked cars can pose safety concerns for bicycle travel in downgrade sections. Bicyclists traveling downhill can reach speeds that are near or equal to those of motor vehicles in urban environments. This makes turning off of the main street and across the cycle track very difficult for motor vehicles because sight distance is extremely limited unless parking is restricted far upstream from the driveway or side street. It is unlikely that 10' of No Parking by driveways and 20' at side streets will be adequate since the AASHTO Green Book provides a design sight distance of 165 ft at 20 mph for left turns from the major road. There are 17 driveways or side streets adjacent to the SB travel lane between STA 103+25 to STA 123+00. It is unlikely that much of this adjacent parking can safely remain as currently proposed.</p>	B	<p>We acknowledge that this is an issue that needs to be addressed, although it is not feasible to remove enough parking to achieve 165' of sight distance at every driveway. However, the majority of the 17 driveways and sidestreets where this issue might arise are minor driveways to single-family, two-family, or three-family residences. These minor driveways are very low volume driveways and are typically used only by residents, who will be educated and acutely aware of where to look and where to expect cyclists that will be riding along Beacon Street.</p> <p>This leaves four sidestreets (Forest St, Prentiss St, Beckwith Circle, and Museum St), and three driveways (278 Beacon St, 260 Beacon Street, and the driveway immediately to the north-west of the 260 Beacon Street driveway). These three driveways all serve larger residential or commercial buildings with off-street parking lots. At these locations of greater concern, the need for additional warning signage will be evaluated and may be necessary. Also under consideration is permanently installed electronic message signs to inform drivers of the cycle track and to raise awareness of an uncommon bicycle treatment. These could be located at either end of the cycle track section (one near Oxford St, and one near Washington St).</p> <p>While it is true that the segment of Beacon Street from Sta 103+25 to Sta 123+00 is generally downhill when travelling in the SB direction, it is not a steep grade. The average downhill grade in this segment is -1.3%, with a maximum downhill grade of -2.25%. The last 450 ft of this segment (from Sta 118+53 to 123+00) is actually uphill in the SB direction. Based on the relatively minor downhill grades and some uphill grades, it is likely that the assumed travel speed of 20 mph for bicyclists is high, and that the 85th percentile speed for bicyclists would be lower than 20 mph. If bicycle speeds of 10-15 mph were assumed, the required intersection sight distance for vehicles turning left from Beacon St would be in the 85' - 125' range, which is more likely to be achieved.</p>		

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9	DER	The Designer implies that in addition to a parking lane 10' shoulders are desirable. The <i>Project Development and Design Guide</i> states that "on-street parking is provided in place of useable shoulders in many different settings to support adjacent land uses." It is not clear that having a parking lane instead of a useable shoulder requires a Design Exception.	A	Agreed		
10	DER	Boston Traffic does not agree with the statement that "6 ft cycle track in the NB direction will also serve as a useable shoulder, as needed." The purpose of having a mountable curb is to allow bicyclists to leave cycle track to turn left into driveways and sidestreets or to pass slower moving bicyclists. It should not be acceptable for motor vehicles to use the sloped curbing to pull up onto the cycle track.	B	We generally agree that it should not be acceptable for motor vehicles to use the sloped curbing to pull onto the cycle track. However, having a mountable curb will allow vehicles to do so in emergency situations.		
11	DER	The 2' shoulder proposed adjacent to the SB travel lane from STA 103+25 to STA 123+00 and STA 132+25 and 141+75 does not appear to be required and that width may be better distributed elsewhere in the cross-section.	B	We will further evaluate the need for the 2' shoulder between the SB travel lane and the parking lane. This will be evaluated in conjunction with comment #7, above.		
12	DER	Justification for proposing cycle tracks has to go beyond an "enhanced perception of safety," <i>[emphasis mine]</i> as stated in the report. The design should actually increase safety. References to other studies are acceptable for background information, but the results should be applied or approximated for this corridor. The number of bicycle crashes are shown in the table, but there is no narrative to describe the type, cause, or location of these crashes. How does the design address these problems?	B	The studies that are referenced generally indicate enhanced safety in areas that cycle tracks are provided, relative to on-street bicycle lanes. However, as indicated in the response to comment #8, above, several actions can be taken to mitigate any potential negative safety aspects of the cycle track, such as increased signage (either with static signs and/or permanent electronic signs) to raise awareness, or increased sight distance at specific locations.		

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13	DER	Treatments at bus stops in any cycle track section need to shown, not just discussed. There are a total of 5 driveways and 2 cross streets adjacent to the northbound travel lane between STA 132+25 and 141+75. If the intention is to bring the cycle track down to a street level at the two bus stops along this stretch, it seems as though the bicycle accommodations will spend more time at street level than at the intermediate level shown in the Typical Section.	B	In the roadway segment from Sta 132+25 to 141+75, the northbound cycle track will only be brought down to street level at the two cross streets. As stated in the response to comment #2, above, the northbound cycle track is not brought down to street level at each driveway. For the bus stop currently located at the corner of Beacon St and Park St, the intention is to shift the bus stop from Beacon St to Park St, thus eliminating any conflicts between boarding and alighting bus passengers and bicycles on Beacon St. For the southbound bus stop currently located at the corner of Beacon St and Washington St, the intention is to shift the bus stop to the downstream side of the intersection, again to eliminate conflicts between boarding and alighting bus passengers and bicycles on Beacon St.		
14	DER	The Designer should include a discussion on how basic maintenance activities such as trash pickup and snow plowing will be accommodated in the cycle track sections.	A	The City of Somerville is aware of the additional maintenance responsibilities, and has publicly stated that they are willing to accommodate this added maintenance. It is noted that residents will be made aware that trash/recycling will need to be left in the buffer space between the sidewalk and the cycle track. In this area, the refuse left for pick-up will not block the sidewalk nor the cycle track.		

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